

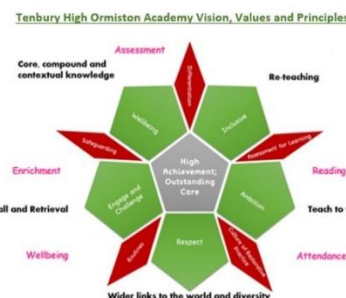






Curriculum Overview for Biology

Year 10

<p>Half Term 1: Organisation (unit 2) and Infection and Response (unit 3) and Bioenergetics (unit 4)</p>			
<p>Substantive Knowledge unit 2:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Hierarchical system: cells, tissues and organs <p>Organ systems</p> <ul style="list-style-type: none"> <input type="checkbox"/> Digestive <input type="checkbox"/> Practical – food tests <input type="checkbox"/> Enzyme mechanism and activity <input type="checkbox"/> Practical into enzyme activity (temperature and pH) <input type="checkbox"/> The heart structure and function <input type="checkbox"/> The lungs structure and function <input type="checkbox"/> The circulatory system <input type="checkbox"/> Composition of blood <input type="checkbox"/> Lifestyle factors and their links to disease <input type="checkbox"/> Coronary heart disease and its treatment <input type="checkbox"/> Cancer and its risk factors <p>Substantive Knowledge unit 3:</p> <ul style="list-style-type: none"> • Communicable diseases – Spread methods, reduction and prevention, reproduction. • Viral diseases – Measles, vaccinations, HIV and the immune system, Tobacco mosaic virus and impact on plants. • Bacterial diseases – Salmonella effects and causes, Gonorrhoea treatment, causes, spread. • Fungal diseases – Rose black spot effects and treatment. • Protist diseases – Malaria spread and prevention. • Human defence – Non-specific and WBCs. • Vaccination – How it works, why we do it. • Antibiotics and painkillers – Use, how they work, fact that painkillers don't kill pathogens. • Monoclonal antibodies (Triple) – Production, use, benefits. • Plant disease (Triple) – Detection methods, identification, infection types, effects. 			<p>Cell Tissue Organ Organ system Organism Epithelial Muscle Glandular Enzyme Substrate Active site Denature Lock and key Complimentary pH Independent variable Dependent variable Control variable Circulatory Double circulatory system Pulmonary Artery Vein Capillary White blood cell Red blood cell Platelet Plasma Coronary Risk factor Malignant Metastasize Benign Epithelial Palisade Spongy mesophyll Guard cell Stomata Waxy cuticle Xylem Phloem Transpiration</p>



<p>Disciplinary Knowledge unit 2:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Rates of reaction calculations <input type="checkbox"/> Plan practical investigations, collect and analyse data to form conclusions <input type="checkbox"/> WS1. 2 Use a model to explain enzyme action <input type="checkbox"/> WS 3.5 explain adaptations of blood cells in relation to their function. <input type="checkbox"/> WS 1.3 and 1.4 Evaluate methods of treatment bearing in mind the benefits and risks associated with the treatment <input type="checkbox"/> WS 1.4 and 1.5 Interpret data about risk factors for specified diseases including impact at local, global and national levels <input type="checkbox"/> AT 7 Observation of a transection of a leaf <input type="checkbox"/> AT 6 and 7 investigate the distribution of stomata and guard cells 			<p>Triple only: Monoclonal antibody Hybridoma Diagnose Deficiency Nitrate Magnesium Physical barrier Chemical defence Mechanical defence</p>
			
<p>Disciplinary Knowledge unit 3:</p> <ul style="list-style-type: none"> • Drug discovery and development – Plants and microorganisms, pharma industry synthesis, trials and testing. The importance of testing • Analysis of graphical data – antibody levels • Process of identifying plant disease 			
<p>Half Term 2: Bioenergetics</p> <p>Substantive Knowledge:</p> <ul style="list-style-type: none"> • Photosynthesis reaction • Rates of reaction for photosynthesis • Limiting factors of photosynthesis • Investigating rates of photosynthesis • How plants use glucose • Aerobic and anaerobic respiration • Impact of exercise on respiration • Metabolism 			
<p>Disciplinary Knowledge:</p> <ul style="list-style-type: none"> • Describing chemical reactions 		<p>Photosynthesis Chlorophyll Oxygen Carbon dioxide Reaction Rate Limiting factor Variable Accurate Trend Insoluble Glucose</p>	



<ul style="list-style-type: none"> • Writing word and symbol equations • Balancing symbol equations • Graph analysis • Calculating rates of reaction • Higher tier: calculating rates using a tangent on a graph • Required practical: investigating rates of photosynthesis 		<p>Respiration Aerobic Anaerobic Lactic acid Muscle Fatigue Oxygen debt Metabolism Enzyme Energy</p>
	